

# Technology *in* Action

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## Teaching History in Inclusive Classrooms: Technology-Based Practices and Tools

Cynthia M. Okolo, Michigan State University

Ralph P. Ferretti & Charles D. MacArthur,  
University of Delaware

For more than a decade, researchers Cynthia Okolo, Skip MacArthur, and Ralph Ferretti have been studying instruction in the social studies. Find out what they have learned about using technology to support *all* students—including students with disabilities—in learning history content.

Understanding history is an intellectually challenging task. It asks us to contemplate people, events, and issues that are often far removed from us in time and familiarity. Too often, history is taught as a litany of facts, names, and dates to be memorized, rather than as the constructive and problem-solving process used by historians (Wineburg, 2001). And, too often, history instruction is delivered through textbooks that are difficult for students to read and understand, in addition to being just plain boring (Armbruster & Anderson, 1984; Beck & McKeown, 1991; Brophy, 1990; Loewen, 1995)!

We have attempted to address the challenges and limitations of history instruction by developing and evaluating an instructional approach we call ***Strategy-Supported Project Based Learning*** (SSPBL). The work we have done with SSPBL has been situated in middle-grade inclusive classrooms in urban schools. The rationale for our approach, a more complete description

of its features, and support for its efficacy are reported elsewhere (Ferretti, MacArthur, & Okolo, 2001; Ferretti & Okolo, 1996; MacArthur, Ferretti, & Okolo, in preparation; Okolo & Ferretti, 1996a; 1996b; 2000). In brief, SSPBL has the following features:

- Students' historical inquiry is organized around an **authentic question or problem**.
- Instruction about a topic is organized around **big ideas**, or major themes that cut across specific examples.
- Students engage in **inquiry projects** in which they formulate and refine specific questions, locate data sources, analyze and interpret information, and draw and support conclusions based on their research (Blumenfeld, et al., 1991; Ferretti & Okolo, 1996).
- Projects lead to the development of **artifacts** that represent students'



### A Look at an SSPBL Unit

5<sup>th</sup> grade students in inclusive classrooms were studying the United States' westward expansion in the second half of the 19<sup>th</sup> century. They organized their study of westward expansion around a narrative strategy by investigating the people, the problems they faced, the reasons for their decisions to travel west, the challenges they faced on the trip, and the outcomes occurring once they arrived.

Students learned about life at this time by examining pictures, diaries, and other authentic historical evidence, some drawn from websites. We provided students with questions to ask of themselves and each other as, working in collaborative groups, they analyzed the evidence. We also developed lessons to teach students about the importance of providing a true and accurate account of a historical event, ways to evaluate bias in evidence and to corroborate sources, and the need to qualify conclusions when there are contradictory accounts. Students created a multimedia presentation about the emigrant group they had investigated and presented their project to peers, parents, and teachers during a classroom Open House.

Source: Ferretti, MacArthur, & Okolo (2001)

proposed solutions to problems, reflect their emerging understanding, and are presented to peers and other audiences for feedback and critique (Ferretti & Okolo, 1996).

- Students are taught **cognitive strategies** to support the conduct of their inquiry and the construction of historical interpretations.
- Learning is **collaborative**, as students work in heterogeneous cooperative groups to conduct and share the findings of their inquiry. Collaboration is characterized by a high degree of constructive conversation (Morocco, 2001) in which students discuss the process and products of inquiry with one another and in which the teacher engages students in dialogue to assess their developing understanding and clarify and extend their historical understanding.
- **Technology**, in the form of video and computer-based tools and information resources, is used to enhance instruction, extend students' analytical capabilities, and access sources of information.

In this *TAM Technology in Action*, we discuss technology-based tools (including video) and activities that have been used in our research program to support the development of students' historical understanding. We organize our discussion of particular tools by describing the need for an activity appropriate to the characteristics of the students or the content demands of history, the way we address this need in SSPBL, and a

technology-based option for addressing the identified need(s).

## Computer-Based Concept Maps and Timelines

**Need.** Research demonstrates that students with disabilities often have background knowledge that they could bring to bear upon an event or issue about which they are reading or learning in history and other subjects. Tapping into that background knowledge would enhance their understanding. However, without support, students with disabilities may fail to do so (Bos & Vaughn, 2002; Wong, 1980).

**Addressing the Need in SSPBL.** To help students activate their prior knowledge, our teachers typically introduce a new historical topic with an activity such as the K-W-L (Ogle, 1986). Through class discussion, students articulate what they **know** and what they **want** to learn about a topic. Later in the unit, the class revisits the K-W-L activity by adding what they have **learned** about the topic. When employing the K-W-L, teachers record the discussion in a permanent form that is posted in the classroom for students to revisit and review. Similarly, teachers engage the class in discussions and record responses when generating questions to be examined in group inquiry projects.

**Technology-Based Option.** The software program, *Inspiration*, facilitates the capture and display of

ideas and questions generated in brainstorming sessions such as these. Equipped with a computer and projection device, a teacher can construct a concept map of key points on the fly. Students' ideas or questions can be represented as independent nodes in initial brainstorming sessions, and then linked to one another in substantive and hierarchical ways in later discussions or lessons. Nodes can be added and relationships among them can be changed with ease. With a click of the mouse, concept maps can be viewed as outlines and outlines as concept maps. Maps created in this manner can be printed for individual or class use and pasted into class and individual projects, including websites and presentations. In other words, digital maps and outlines are available for a much wider variety of purposes than are their paper-and-pencil counterparts.

The use of concept maps in history instruction is not limited to the whole class brainstorming sessions discussed above. Research has shown that the concept mapping and outlining tools in *Inspiration* can help students with disabilities actively construct an understanding of a domain and to take more effective notes and syntheses of information (Anderson-Inman, 1994; Anderson-Inman & Zeitz, 1994). In history instruction, individuals and groups of students can use concept maps as a tool for organizing the information they are collecting and analyzing during their inquiries, and as tools for organizing reports and presentations.

Although advertised for grades K-3,

*Kidspiration* (a child-friendly version of *Inspiration*) may be appropriate for individual use by middle grade students. It provides text-to-speech capabilities to assist with reading and editing text. Both programs can be downloaded for a 30-day trial from the Inspiration website ([www.inspiration.com](http://www.inspiration.com)).

When introducing a new topic, it also is important to help students understand where the events they are about to study are situated in time. That is, what is the chronology of events leading up to the ones they will study, and how are these events related? We have used the software program, *Timeliner* (Tom Snyder Productions), to construct timelines of key historical events around which teachers can structure classroom discussion. Students' personal copies can be used throughout the unit's activities and a class timeline can be revised and extended as new events are examined. Like *Inspiration*, *Timeliner* is easy to use and allows information to be viewed and disseminated in a variety of formats. The Tom Snyder website ([www.teachtsp.com](http://www.teachtsp.com)), which offers a downloadable trial version of the software, has a rich collection of ideas for implementing *Timeliner* in history and other instructional areas.

## Video-Based Anchors

**Need.** Social studies instruction is often rooted in the textbook. Textbooks are challenging for all learners, but especially for those with disabilities, because they often use difficult vocabulary, assume a high

degree of background knowledge, cover too many topics, and don't help students integrate and organize major concepts (Armbruster & Anderson, 1984; Beck & McKeown, 1991; Brophy, 1990; Loewen, 1995).

### Addressing the Need in SSPBL

Although we are not advocating that schools abandon textbooks, our approach does favor the use of a variety of primary and secondary sources, with an emphasis on video-based anchors to introduce key instructional concepts. The benefits of using video as an anchor, or as an initial encounter with the key concepts around which a unit is organized, have been well documented (e.g., Cognition and Technology Group at Vanderbilt, 1997; Glaser, Rieth, Kinzer, Colburn, & Peter, 1999).

For students who have limited background information about a topic, video provides rich visual details about the people, events, and time period. Video is especially advantageous for poor readers whose ability to gain information from print may be limited. When the video tells a compelling story, we have found students highly motivated to learn more about the topic. We also have observed students to use the video throughout the unit as a source of examples and as support for their points of view.

**Technology-Based Option.** Although many have been developed for an adult audience, PBS videos are an excellent source on a range of historical topics. To enhance their appropriateness for middle-grade learners,

The possibilities that technology offers for enriching history instruction and promoting students' historical understanding and motivation are exciting and extensive.

our participating teachers pre-teach difficult vocabulary and concepts and stop the video at key points to provide additional information, check student understanding, and clarify and extend students' knowledge through discussion. The PBS website ([www.pbs.org](http://www.pbs.org)) offers a rich collection of lesson plans, teaching tools, and additional information resources to accompany the videos, and we have made frequent use of these resources. Video must be selected and used thoughtfully, however. It is incumbent upon teachers to help students see that video-based information is as much an interpretation of history as are other primary and secondary sources, and as such, may be incomplete or biased.

## Web-Based Information Sources

**Need.** If students are to engage in authentic historical inquiry, they need to have access to more than a textbook. They should be able to examine and analyze historical evidence—or multiple primary and secondary source documents. Working with evidence enables them to learn how to integrate information and deal with conflicting points of view and biases that these documents may contain.

**Addressing the Need in SSPBL.** As researchers, we have helped teachers to assemble historical documents for students' SSPBL inquiries. School libraries rarely have the types of evidence we'd like students to use, and, in the early 1990s, our research

team had to scour school, local, and university libraries; teacher centers; and local bookstores to assemble sufficient information about the various historical topics that our students investigated.

**Technology-Based Option.** The World Wide Web has proved invaluable in the implementation of SSPBL. It contains a treasure trove of historical information and artifacts that teachers and students can use in the classroom. As our readers undoubtedly know, much of the information on the Web is of dubious value and many websites are written at a level that is inaccessible to middle-grade students and impossibly difficult for students with disabilities (Debashis, 1995). Therefore, our research team and teachers have invested considerable time in screening websites prior to and during the implementation of a unit. However, we have found that the time spent locating appropriate sites is offset by richness of historical information available on them.

Of particular note, the Web has many sites containing diaries, documents, photographs, and pictures of historical artifacts. Like the anchor videos we use, pictures and photographs have proved especially useful in helping students gain a deeper understanding of the historical period they are studying. Overcoming *presentism* (Ashby & Lee, 1987; Judd, 1915), or the tendency to interpret the past through the lens of the present, is a major challenge faced by serious and casual historians alike. We make extensive use of pictures and photographs, typically drawn from histori-

cal websites, to enrich students' understanding of people who lived at the time they are studying. The class examines images that depict the manner in which people dressed, their homes and work environments, leisure activities, and material possessions. Some images offer insight into the stereotypes and popular beliefs of the time and are used as springboards for discussing bias in evidence.

Merely presenting photographs and other images to students may do little to advance their historical understanding, however. Students lack extensive knowledge of the past and of the technologies used to create these images (which can affect the way a photograph or picture appears). Furthermore, students' interpretations are biased by their present-day lives, as discussed above. Thus, skillful and thorough classroom discussion is an important component accompanying the analysis and interpretation of historical images. We typically copy images from the Web to CD-ROMs for efficiency in displaying them to the class. Teachers then engage students in discussion about the context and purposes for which the images were created, help students analyze their features, and guide consideration of biases they might reflect. Students may choose to use these images, or others they locate on the Web, in the multimedia projects or presentations they create.

Typically, we have created for students a front door, of sorts, to the Web that gives them access to sites that are relevant to the historical topic they are studying. We realize that this

practice constrains students' use of the Web and limits their opportunity to learn important information technology skills, such as use of search engines and analysis of website value and credibility. However, in the classrooms in which our work has been situated, it has been difficult to find adequate time in the school day, or a sufficient number of computers, to permit students to engage in open-ended searches of the Web. We also have been sympathetic to teacher and parental concerns about accidental access to inappropriate sites. Although it is beyond the scope of this document to provide an exhaustive list, Figure 1 offers some websites and sources that provide resources for history instruction.

## Multimedia Authoring and Presentation Tools

**Need.** Although passing the next test is the goal of typical history instruction, historians study history to produce products that can communicate new ideas and information to others. Historians create books, articles, websites, exhibits, and other artifacts that can be studied, critiqued, debated, and enjoyed by those who view them.

**Addressing the Need in SSPBL.** In SSPBL, students' inquiry projects culminate in a product that demonstrates what they have learned in their investigations. Student groups become the classroom experts in different topics, and they are expected to share their expertise for the benefit of others. Typically, our students make

presentations to their classmates, and when possible, to parents.

**Technology-Based Option.** Authoring and presentation tools support the process of documenting and communicating what a group has learned. The multimedia capabilities of these tools enable students to integrate pictures, sounds, movies, and music with text. Research has shown that the construction of multimedia projects offers unique benefits including increased knowledge of a topic that is maintained over time and enhanced interest, motivation, and engagement (Lehrer, Erickson, & Connell, 1998).

We have used a variety of authoring and presentation tools over the years, from *Digital Chisel* (Pierian Spring Software) to *HyperStudio* (Roger Wagner) to *PowerPoint* (Microsoft). Our participants have been excited by the opportunity to express themselves in multimedia and students with disabilities often find more avenues for success in the group when their contributions are not limited to print. Furthermore, students are proud of their professional-looking finished products (Ferretti & Okolo, 1996).

Time has been our biggest challenge in attempts to make fuller use of authoring and presentation tools. Students' lack of proficient keyboarding skills, the time needed to learn a new software program, and limited classroom computer resources have reduced the extent to which we can integrate authoring and presentation tools into SSPBL. To address some of these constraints, we have found it



helpful to provide explicit guidelines about the information that students should include in their projects and to use paper templates on which students can draft their projects prior to working on the computer. Although we find pedagogical advantages to the degree to which students can create nonlinear links, and we prefer the more extensive text-generation tools of program such as *Digital Chisel* and *HyperStudio*, we have found it more feasible to use oral presentations, supported by a tool such as *PowerPoint*, as a culminating activity.

## Summary

The Strategy-Supported Project-Based Learning approach is designed to develop historical understanding in middle-grade inclusive classrooms. Multiple media and technology tools are key features of SSPBL, and we have discussed the ways in which we have used these as alternatives to textbook-based information and activities. The possibilities that technology offers for enriching history instruction and promoting students' historical understanding and motivation are exciting and extensive.

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Figure 1: A Partial List of Websites to Support History Instruction

**National Archives and Records Administration**

[www.nara.gov](http://www.nara.gov)

A collection that documents the rights of American citizens, the actions of Federal officials, and the national experience. Includes documents, posters, records, photographs and helpful background information about them.

**Library of Congress, American Memory Collection**

<http://memory.loc.gov>

American Special Collections: A gateway to primary source materials related to the history and culture of the United States. Includes activities and lesson plans to accompany the site's resources.

**History Matters**

[www.historymatters.gmu.edu](http://www.historymatters.gmu.edu)

Designed for high school and college history teachers, the site has annotated hundreds of history websites and includes links to lesson plans, activities, primary documents, and guides for analyzing historical evidence.

**Social Studies Sources**

[www.indiana.edu/~socialst](http://www.indiana.edu/~socialst)

Contains links to a broad array of social studies websites and other helpful educational resources for K-12 teachers.

**Sallie Bingham Center for Women's History and Culture**

[scriptorium.lib.duke.edu/women/digital.html](http://scriptorium.lib.duke.edu/women/digital.html)

On-Line Archival CON-LINE Archival Collections. Contains images and texts related to African-American women, Civil War women, and the Women's Liberation Movement.

**Web de Anza Project**

<http://anza.uoregon.edu>

Provides students and scholars with primary source documents and multimedia resources covering Juan Bautista de Anza's two overland expeditions from the Sonoran desert to northern California, leading to the colonization of San Francisco in 1776. A good example of supported text on a website.

**Eye Witness History: Through the Eyes of Those Who Lived It**

[www.ibiscom.com/index.html](http://www.ibiscom.com/index.html)

Samples of eyewitness accounts of historical events from the ancient world through the 20<sup>th</sup> century.

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Council for Exceptional Children  
1110 No. Glebe Rd., Suite 300, Arlington, VA  
22201-5704

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A Division of The Council for Exceptional Children  
1110 North Glebe Road, Suite 300  
Arlington, VA 22201-5704